



**PERmanent MAgnet Network
for the European Transition**

PERMANET: Europe's Collaborative Hubs for Industrial Impact on Rare Earth Magnet Extraction & Processing

Josep MARÍ CERVERA

Head of EU Strategic Partnerships

Iberian Sustainable Mining Cluster



**Funded by
the European Union**

Challenges and context

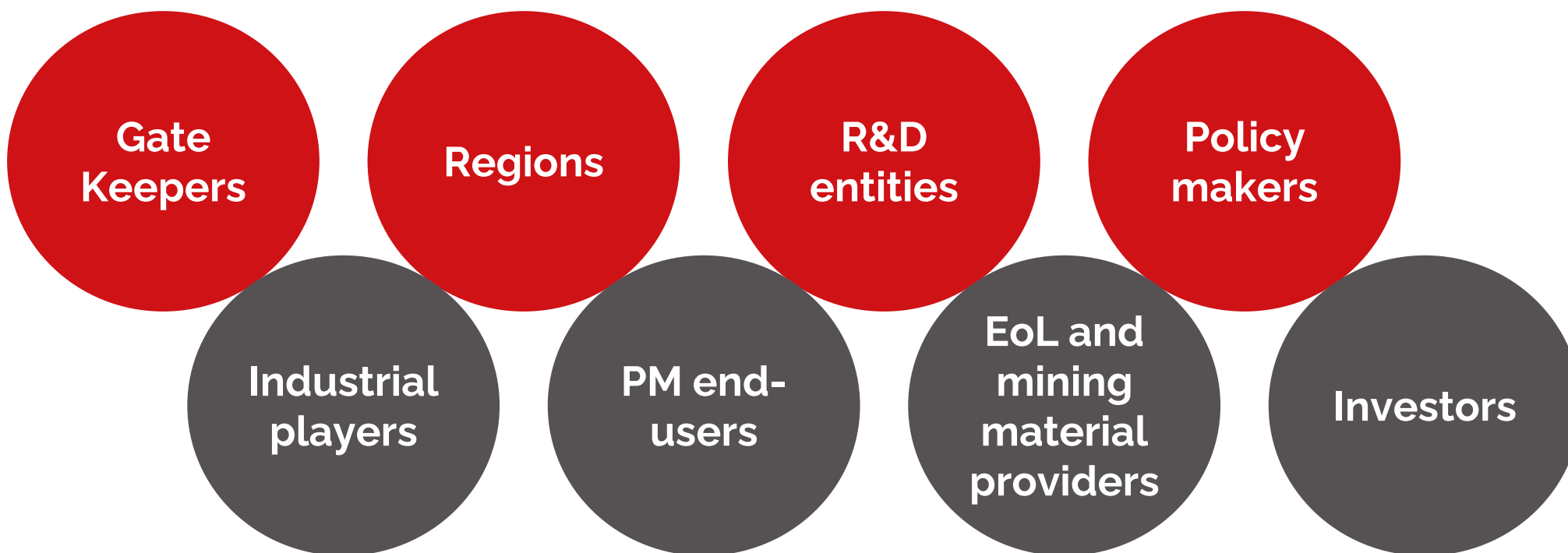
Permanent magnets are at the heart of **Europe's green and digital transition** powering electric vehicles, wind turbines, electronics, robotics and many other digital products. However, the EU is currently **dependent on non-European** imports for REEs, making the continent **vulnerable to supply risks and market volatility**.

PERMANET is designed to address these challenges by significantly improving **supply security** while simultaneously **reducing the environmental footprint** of rare earth value chains in Europe.

The project contributes directly to the EU's ambition to strengthen resilience by increasing access to both **primary raw materials** and **secondary raw materials**, including those recovered through recycling and circular economy approaches.

Objective

The PERMANET project aims to establish an **innovative Network of EU actors** to ensure a resilient supply of REE PM in Europe. It is composed of relevant stakeholders able to provide equipment, R&D services and expertise to **accelerate the development of cutting-edge technologies**.



The PERMANET Consortium

40 Month project

32 Partners

13 Countries

Total budget 20 819 760,50 €

Private financing 4 821 600,12 €



Partners along the value chain



MINING



REE PROCESSING



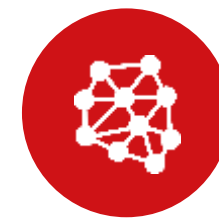
MAGNET PRODUCTION



COMPONENT PRODUCTION



RECYCLING



PERMANET FRAMEWORK



TÉCNICAS REUNIDAS



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PERMANET

Integrated EU PERMANET Network Structuring, Integration and Long-Term Financial Sustainability

Framework Enablers for a Sustainable Access to REE PM

Hub 1: Sustainable supply of Rare Earth Elements (REE)

Hub 2: Demonstrating long- and short-loop circular REE PM

Hub 3: Innovative, efficient, and sustainable PM manufacturing

Investment, Upscale and EU-wide Industrialization

3 Technological Hubs



HUB 1

Sustainable REE supply



Innovative mining and tailing extraction



REE Oxide Solvent Extraction Processes



Production of REE concentrates



HUB 2

Circular REE innovation



Consolidated EU-wide EoL Collection Platform



Innovative dismantling, sorting and mechanical pre-treatment



EoL REE Leaching Extraction



Hydrogen Decrepitation



HUB 3

Innovative magnet production & User-Driven Testing



Innovative Oxide reduction



Innovative PM manufacturing process



Flakes, pellets, powder preparation



Final integration and end-use

Network infrastructure and enablers

ECOSYSTEM BUILDING



Integrated EU PERMANET Network Structuring, Integration and Long-Term Financial Sustainability



Investment, Upscale and EU-wide Industrialisation

STRATEGIC GROWTH

ENABLING CONDITIONS



Framework Enablers for a Sustainable Access to REE PM



Communication, Dissemination, and Cross-Project Integration

COMMUNITY BUILDING

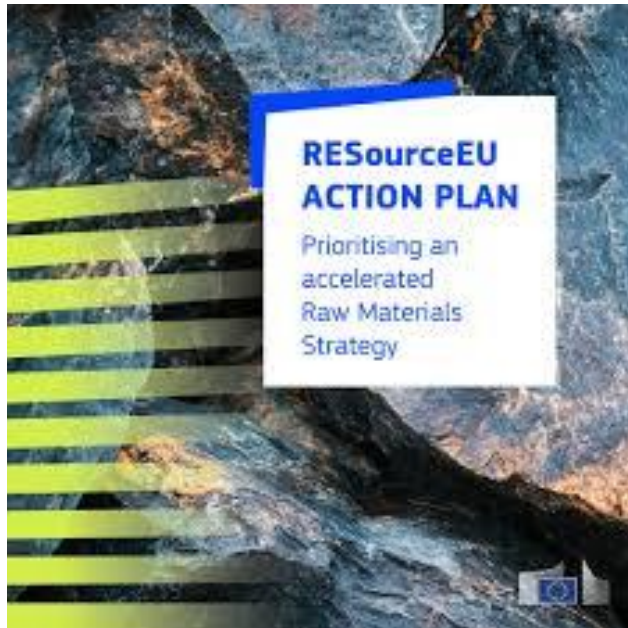
PERMANET - : Europe's Collaborative Hubs

What makes these three hubs particularly powerful is that they are **not isolated infrastructures**. They are fully connected within a **single PERMANET Network Infrastructure**, offering a coordinated, pan-European innovation ecosystem with a single entry point for industry, researchers, and investors.

- Increasing access to primary and secondary rare earth materials,
- Strengthening critical processing and refining capabilities within Europe,
- Enabling circular economy solutions for permanent magnets,
- Accelerating industrial deployment across strategic sectors.

PERMANET - : Europe's Collaborative Hubs

Recent policy discussions at EU level have made it clear that rare earth elements and permanent magnets are now recognised as strategic assets for Europe's energy transition, mobility systems, and defence capabilities. As a result, the EU is moving beyond regulatory ambition and deploying new instruments to secure access and reduce dependency.



Europe's financial and governance landscape is evolving. While regions and project promoters are being asked to **accelerate project development and permitting**, financial oversight, risk management, and strategic prioritisation are becoming increasingly **centralised at EU level**.

PERMANET - 2050



After EU funding, **PERMANET** evolves into **PERMANET-2050**, a **self-sustaining network**

Providing **value-added services** to RTOs and companies, enhancing servicing & business development capacity.



Act as a **single-entry point** to **interdisciplinary, top-class facilities** for REE permanent magnet innovation.

PERMANET-2050 Key functionalities

Dashboard & Matchmaking

Resource & Supply Chain Mapping

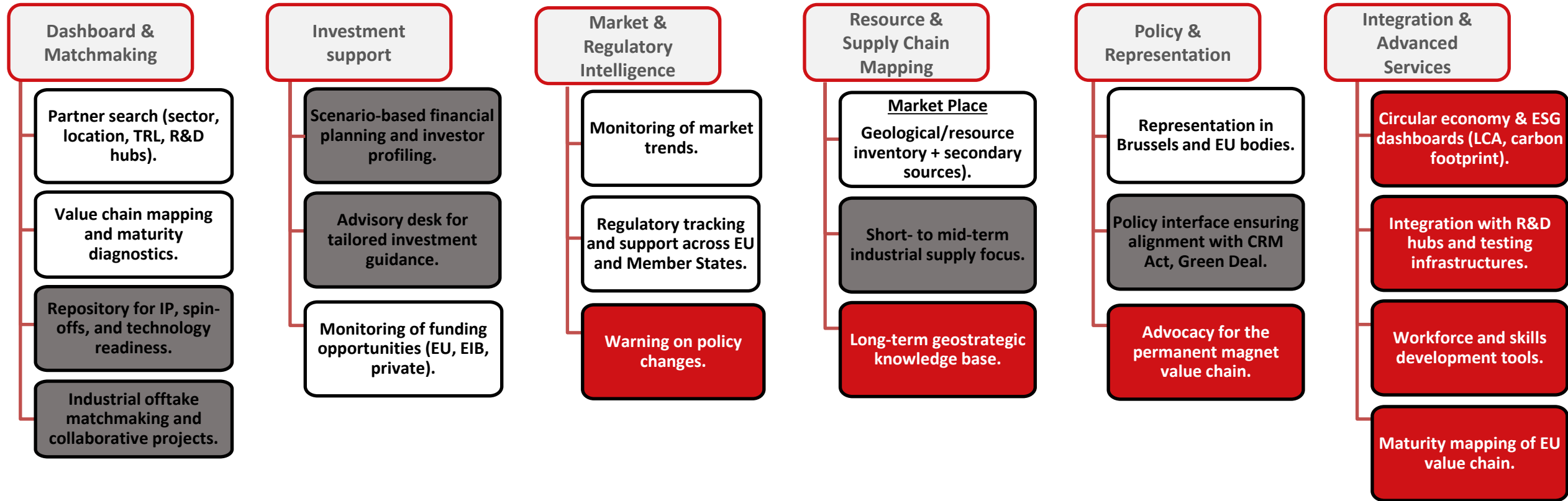
Investment Support

Policy & Representation

Market & Regulatory Intelligence

Integration & Advanced Services

A.I.S.B.L.'s Key functionalities: Phase 1 – 2 - 3



Source and concept idea for the graph by



Communication materials

Resources

- All
- Deliverables & Reports
- Communication Materials



Brochure (digital)	Communication Materials	0,66 MB	
Brochure (print)	Communication Materials	4,21 MB	
Poster (vertical)	Communication Materials	3,70 MB	
Poster (horizontal)	Communication Materials	3,70 MB	
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web: www.permanetproject.eu

email: info@permanetproject.eu



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